ABSTRACT OF THE DISCLOSURE

A method and apparatus for forming a porous layer on the surface of a semiconductor material wherein an electrolyte is provided and is placed in contact with one or more surfaces of a layer of semiconductor material. The electrolyte is heated and a bias is introduced across said electrolyte and the semiconductor material causing a current to flow between the electrolyte and the semiconductor material. The current forms a porous layer on the one or more surfaces of the semiconductor material in contact with the electrolyte. The semiconductor material with its porous layer can serve as a substrate for a light emitter. A semiconductor emission region can be formed on the substrate. The emission region is capable of emitting light omnidirectionally in response to a bias, with the porous layer enhancing extraction of the emitting region light passing through the substrate.